IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Zones et al.

Serial No. 10/698,250

Filed: October 31, 2003

For: PREPARING SMALL CRYSTAL SSZ-32 AND ITS USE IN A HYDROCARBON CONVERSION PROCESS

Attorney Docket: T-5969

GROUP ART UNIT: 1764

EXAMINER: Tam Nguyen

P.O. Box 6006
San Ramon, CA 94583-0806

DECLARATION OF STACEY I. ZONES UNDER 37 CFR 1.132

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Stacey I. Zones Ph.D., hereby declare that:

I received a Ph.D. in Inorganic chemistry from the University of California in 1978. I joined Chevron in 1980 and have worked in the area of zeolite synthesis from 1980 until the present. I am listed as an inventor on more than 80 U.S. patents dealing with zeolite synthesis and their use as catalysts and adsorbents, and have served on several advisory boards in the international zeolite field, including the International Zeolite Association Synthesis commission. I am currently a Research Fellow in the Chevron Corporation and an adjunct professor at University of California at Berkeley in the Dept. of Chemical Engineering.

I am a co-inventor of the present invention.

Below is the support data for patent application 10/698,250, filed on October 31, 2003.

The Examiner has asserted, in his Final rejection, that the SSZ-32 product disclosed in U.S. Pat. No. 5,397,454 appears to be the same as the product claimed in the instant invention. I am the inventor on both the '454 patent and the instant application and demonstrate here that they are different materials.

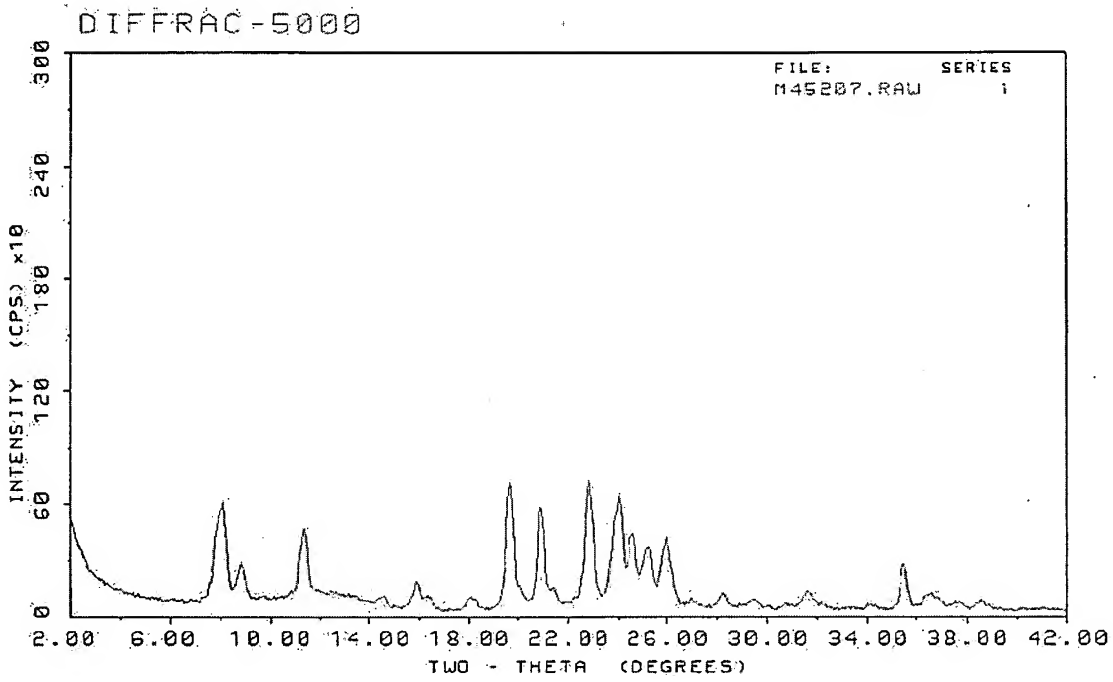
The procedure of Examples 1 and 2 in '454 produces a crystalline SSZ-32 which has approximately the same X-ray diffraction pattern as the standard SSZ-32 demonstrated in Figure 1(a) of the instant invention. Figure 1(a) illustrates the x-ray diffraction pattern of SSZ-32X (the broadline product of the instant invention) compared with standard SSZ-32.

The Examples 1 and 2 of '454 are reproduced below, followed by the X-ray diffraction pattern of the resulting SSZ-32.

Example 1 of '454

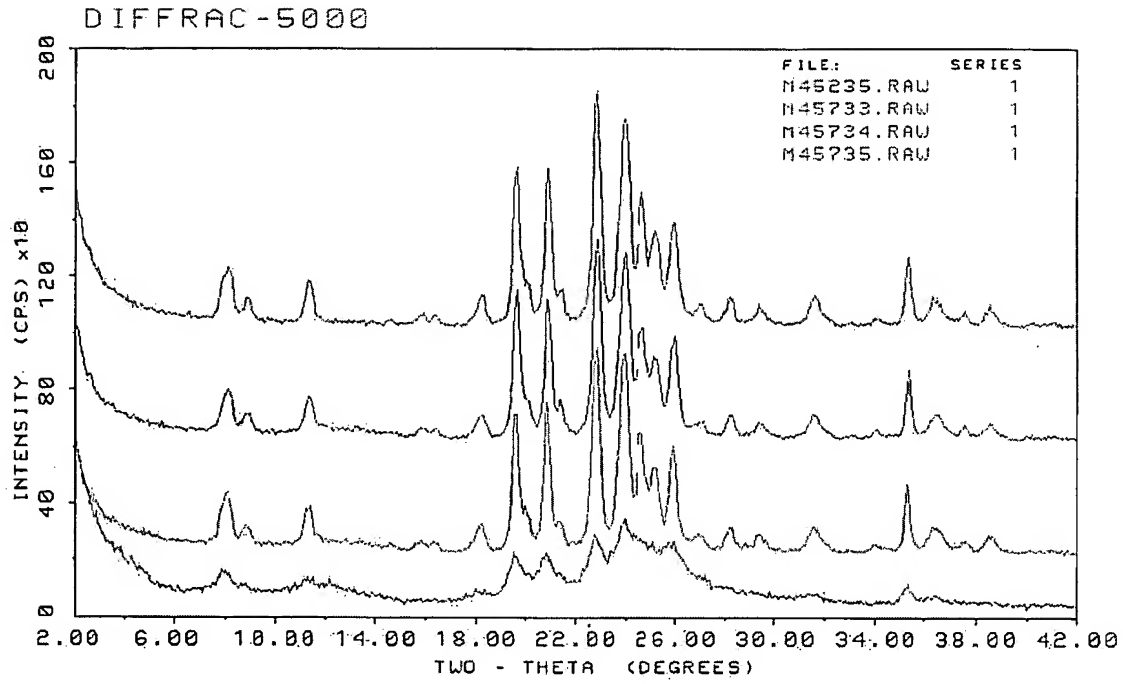
18.73 Grams of a 0.78M solution of N,N'-diisopropyl-imidazolium hydroxide were mixed with 44 ml of H_2O and 1.06 gms of NaOH (solid). The organocation is prepared as described in U.S. Pat. No. 4,483,835. It is then ion-exchanged to its hydroxide form using AG1-X8 resin. 22.16 Grams of Ludox AS-30 are blended into the above solution. After thorough mixing, 10.96 gms of Nalco 1SJ612 (26% SiO_2, 4% Al_2O_3) were added with mixing. Finally, milligram quantities of crystalline ZSM-23, prepared as in Example 31 of U.S. Pat. No. 4,483,835, were added to the mix as seeds. The reaction solution was stirred at 30 RPM and

heated to 170° C. for 7 days. Upon washing, drying and X-ray diffraction analysis, the reaction product was crystalline SSZ-32.



Example 2 of '454

Another reaction was run as in Example 1, adding in sequence, 0.24 gms of NaOH, 7 ml H_2O, 4.0 gms of the template solution of Example 1, 4.0 gms of Ludox AS-30, and 2.55 gms of Nalco 1SJ612. Seeds from Example 1 were added and the reaction was run as in Example 1. The product was once again crystalline SSZ-32. Analysis showed the SiO_2 /Al_2O_3 ratio to be 39. The figure below illustrates SSZ-32 produced by Example 2 of '454 (top three xrd patterns) compared to broadline SSZ-32 of this application. Broadline SSZ-32 is depicted by the bottom xrd.



Please note the extreme similarity of the SSZ-32 x-ray diffraction patterns depicted for Examples 1 and 2 of '454 above to the x-ray diffraction pattern of standard SSZ-32 shown in Figure 1(a) of the application, reproduced below:

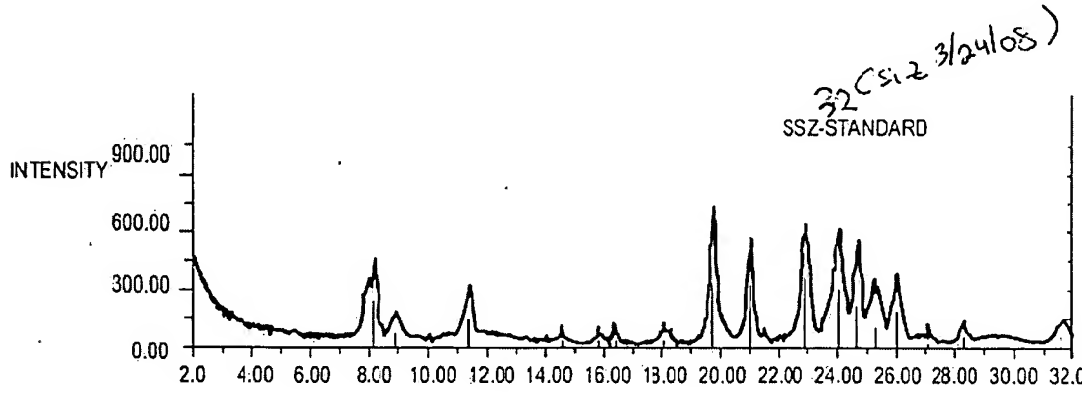
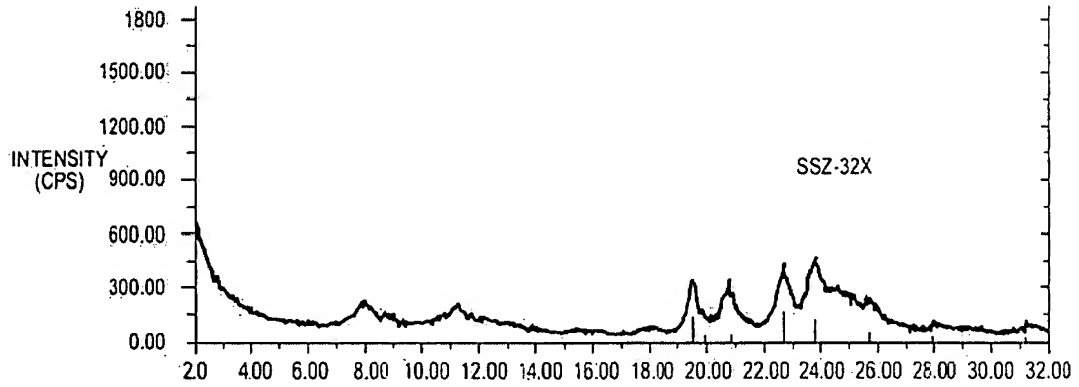


FIG. 1(a)

On page 15 of the specification of the instant invention, Example 1 of the application discloses the procedure for the preparation of SSZ-32X. Lines 13-15 disclose the addition of 181 grams of isobutylamine, which acts as a buffer to the

reaction system. The '454 patent does not teach this step. The x-ray diffraction pattern for the zeolite obtained using this procedure (SSZ-32X) is provided below.



The xrd of SSZ-32x is compared, in Figure 1(a) of the application to the X-ray diffraction pattern of standard SSZ-32. The differences are evident. SSZ-32 is also known as "broadline" SSZ-32. The peaks are not as sharply defined in SSZ-32X as in standard SSZ-32. SSZ-32X has been found to provide superior results in dewaxing, and is clearly a different material from SSZ-32. As stated in Example 1 of the application, the new product (SSZ-32X) is essentially related to SSZ-32 but the diffraction lines have been considerably broadened. Example 3 of the application demonstrates decreased cracking capability for SSZ-32X and Example 4 demonstrates increased isomerization ability for SSZ-32X.

The comparisons made in this declaration effectively demonstrate that SSZ-32X and SSZ-32 are two different materials.

Executed at Richmond, CA this 24th day of March, 2008.

Stacey I. Zones